



U.S. Environmental Protection Agency Great Lakes National Program Office (GLNPO) Significant Activities Report

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Great Lakes Water Quality Agreement Review Underway

On April 28th, the Governments of the U.S. and Canada, launched the one every six year review of the operation and effectiveness of the Great Lakes Water Quality Agreement. The kick-off meeting was held at USEPA Region 5 Headquarters in Chicago, Illinois. Attendees included the Agreement Review Committee, which is the binational steering committee overseeing the review, the Review Working Group co-chairs who are responsible for the review of the articles and annexes of the Agreement, and a number Review Working Group members (approx. 150) to kick-off the formal review process. About 100 additional people participated via a Webcast and teleconferencing. This also allowed for each of the Review Working Groups to have their first formal meeting. Since April 28th, the Review Working Groups have begun to meet via teleconfer-



Participants in Great Lakes Water Quality Agreement Kick-off Meeting in Chicago on April 28, 2006

ence to begin the formal review. The Review Working Groups are tasked with providing a draft report to the Agreement Review Committee by September 25, 2006. The entire process is scheduled to be completed in the Fall of 2007.

More information can be found at: http://binational.net/glwqa_2006_e.html.

(Contact: Mark Elster, 312-886-3857), elster.mark@epa.gov)

Spring Water Quality Survey

GLNPO's 2006 Spring Great Lakes monitoring survey began on Saturday April 1st, monitoring all of the Great Lakes and providing samples for biological and chemical analysis.

The U.S. Environmental Protection Agency's Great Lakes National Program Office (GLNPO) is responsible for monitoring the offshore water quality of the Great Lakes to evaluate water quality over time and identify any emerging water quality problems. Comprehensive water quality surveys are conducted in all five Great Lakes in both the Spring, when the water is cold and well mixed, and in the Summer, when the surface waters are warmer and the lakes are stratified and

more biologically active. GLNPO's 180-foot research ship, the *R/V Lake Guardian* is used to conduct the surveys.

The measurements made during the water quality surveys in all five Great Lakes are:

Chemical/Nutrient Parameters

- Phosphorus – important, limiting nutrient for algae growth; a natural component of the Great Lakes but excess amounts can be introduced by municipal and industrial sewage processes, phosphate detergents, and runoff from urban and agricultural areas.
- Nitrogen – important nutrient for algae growth; a natural component of the Great Lakes but excess amounts can be introduced through natural and human activities such as runoff from urban and agricultural areas and atmospheric deposition.
- Silica – important mineral for diatom (algae) growth; a natural component of the Great Lakes
- Chloride – an anion that is introduced to the Great Lakes via anthropogenic input of chloride compounds (brines, road salt).

Physical and Water Quality Parameters

- Water temperature, transmissivity, incident light, air temperature, wind speed, wave height, barometric pressure, conductivity, dissolved oxygen, pH.

Biological Parameters

- Phytoplankton and zooplankton – abundance and biomass of these important components of the lower food web are important indicators of the health of the Great Lakes food web.
- Benthos – abundance, biomass, and species distributions of these bottom-dwelling invertebrates are important indicators of the health of the benthic community and the health of the Great Lakes food web; changes in the benthic community can also indicate potential disruptions resulting from pollutants or invading species such as zebra and quagga mussels.



Scientists prepare to lower the "rosette" water sampler aboard the *R/V Lake Guardian*

Supporting Great Lakes Research

Per it's usual practice, in order to maximize the utility of the *R/V Lake Guardian*, GLNPO accommodated several other researchers while conducting the Spring survey:

- Dr. Michael Twiss from Clarkson University, Potsdam, New York came on board in Lake Ontario to develop standard operating procedures for the FluoroProbe profile and to relate the measurements of algal divisions by the FluoroProbe to the phytoplankton and measured chlorophyll-a.
- Purdue University doctoral graduate student Kimberly Ralston-Hooper collected the amphipod *Diporeia* (which is a key part of the Great Lakes food chain) aboard the first leg of the GLNPO Spring survey to study the effects of multiple stressors on *Diporeia* in order to help explain the causes of the rapid decline in *Diporeia* populations in the Great Lakes. The method applies stable isotopes as

indicators of dietary health and trophic status of this benthic amphipod using protocols under development by Dr. Marisol Sepulveda in the Purdue Forestry and Natural Resources Department.

- Dr. Mary Balcer was aboard to study the population estimates of *Mysis relicta*, a krill-like crustacean that is a part of the food base for many fish in the Great Lakes.
- Dr. Greg Michalski from Purdue University conducted isotopic analysis of nitrogen and oxygen in nitrate from hydro casts collected in each lake during the GLNPO Spring survey. His analyses will detect the amount of photochemically-produced nitrate that is retained in the water column without biologic recycling, and relate water column nitrogen to nitrogen deposition in the region.

The Spring survey ended on April 27th after the scientists and crew of the *R/V Lake Guardian* guided the ship to over 75 sampling sites on the lakes and taking samples for chemical and biological water quality.

For more information, please visit: <http://www.epa.gov/glnpo/monitor.html>

(Contact: Glenn Warren, 312-886-2405, warren.glenn@epa.gov)

Earthkeepers E-Waste Collection a Whopping Success

The Earthkeepers, a faith-based organization that



Earthkeeper e-waste collection at Trinity Episcopal Church in Houghton, Michigan
(photo courtesy of Don Watson)



Since motor vehicles are not allowed on the island, e-waste collected on Mackinac Island is transported by horse-drawn wagon to a ferry to the mainland (photo by Mackinac Island Recycling Program)

received a GLNPO grant of \$55,000 to conduct a hazardous waste “clean sweep” (collection event) in the Michigan’s Upper Peninsula, made national news when it held its second annual event. The group, which is comprised of 120 churches and temples, representing 9 denominations, conducted an Earth Day “Clean Sweep” event, focused on electronic waste (e-waste) such as computers, monitors, televisions and cell phones, some of which contain hazardous materials such as mercury and lead. The partnership mobilized over 300 volunteers aged from 9 to 90 to operate a network of 27 drop off sites across the Upper Peninsula and assembled a fleet of semi-trucks to haul away the collected items. Despite intermittent showers and temperatures only in the 40’s, an estimated 10,000 Upper Peninsula residents turned out for the event and brought a total of over 320 tons of e-waste in 3 hours. In order to be environmentally benign as possible, all of the e-waste collected will be recycled or refurbished and redeployed, so that it doesn’t end up in landfills.

(Contact: Elizabeth LaPlante, 312-353-2694, laplante.elizabeth@epa.gov)

Virtual Classroom

GLNPO intern Jacqueline Adams was featured in an April 19th USEPA Region 5 news release highlighting her outreach efforts to area high schools from GLNPO’s research ship, the *R/V Lake Guardian*. During the GLNPO Spring Monitoring Survey (see preceding story), three

Chicago high schools learned about science and the Great Lakes by exchanging e-mails with Jackie while she was onboard the *Guardian*. Jackie fielded questions about her work, the Great Lakes and life on board the research ship. The students are participants in the Girls E-Mentoring in Science, Engineering and Technology (GEM-SET) program that is designed to connect girls in middle and high schools with women in science, engineering and technology fields. The program is a demonstration project developed by the Women's Bureau, U.S. Department of Labor, in partnership with the Center for Research on Women and Gender at the University of Illinois at Chicago. More information about GEM-SET is available at: <http://www.uic.edu/orgs/gem-set/index.htm>.

Jackie's virtual classroom program will be featured in an upcoming issue of Public Works Magazine.

(Contacts: Phillippa Cannon, 312-353 - 6218, cannon.phillippa@epa.gov; or Jackie Adams, 312-353-7203, adams.jacqueline@epa.gov)

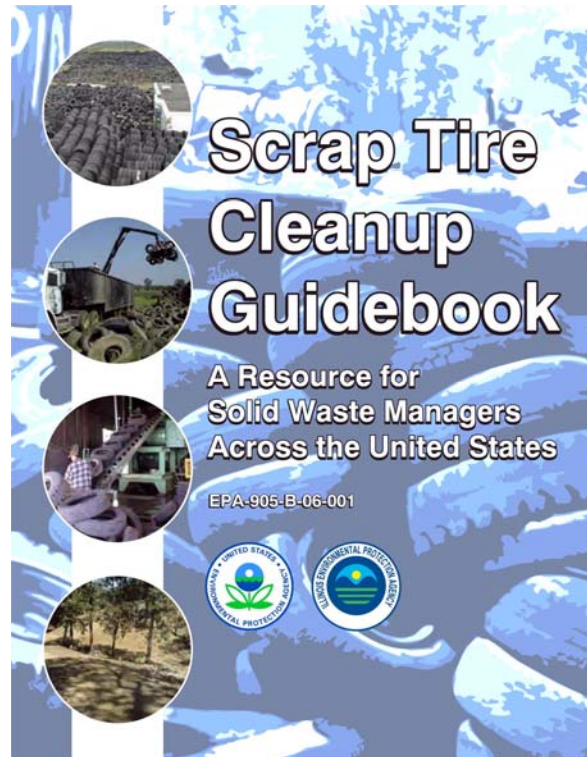
Lake Guardian Visits Rochester

On April 12th, GLNPO staff guided a group of over 20 interested officials on a tour of the *R/V Lake Guardian* while the ship visited Rochester, New York as part of its Spring Survey of Lake Ontario. Among the visitors were representatives from Monroe County's Department of Environmental Services, Monroe County's Health Department, the New York Water Environment Association Industrial Issues Committee, and the office of New York State Assemblyman David Coons.

(Contact: Todd Nettesheim, 312-353-9153, nettesheim.todd@epa.gov)

Scrap Tire Cleanup Guide

To help state and local governments reduce the economic burdens and environmental risks associated with scrap tire piles on their landscapes, USEPA Region 5, GLNPO, and Illinois EPA have collaborated to create the Scrap Tire Cleanup Guidebook. The guidebook brings together the experience of dozens of professionals



Cover of Scrap Tire Cleanup Guidebook

to provide state and local officials with the information needed to effectively clean up scrap tire piles. The guidebook discusses starting a cleanup program, working with contractors to clean up sites, and implementing prevention programs that will reduce scrap tire dumping. The Scrap Tire Cleanup Guidebook is available online at <http://www.epa.gov/reg5rcra/wptdiv/solidwaste/tires/guidance/>

(Contact: Steve Rosenthal, 312-886-6052, rosenthal.steven@epa.gov)

Waukegan Harbor Summit

On April 19th, U.S. Congressman Mark Kirk hosted a Waukegan Harbor stakeholders meeting at the Waukegan Yacht Club. Representatives from the USEPA, U.S. Army Corps of Engineers, the Illinois EPA, the City of Waukegan, the National Oceanic and Atmospheric Administration, the Waukegan Citizens, and the Alliance for the Great Lakes all called for an expedient, cooperative effort to remediate the contaminated sediments in Waukegan Harbor.

The agencies are attempting to combine local, state, federal, and private funding to design and implement a cooperative project to address the remaining PCB contamination in the harbor. The non-federal stakeholders committed to applying for federal cleanup funds by a January 2007 deadline. Stories on the summit appeared in the Chicago Tribune and the Chicago Sun Times newspapers.

(Contact: Scott Cieniawski, 312-353-9184, cieniawski.scott@epa.gov)

Ohio Environmental Health Assn.

GLNPO's Ted Smith gave a keynote address at the annual meeting of the Ohio Environmental Health Association, held April 26th, in Columbus, Ohio. Ted presented an overview of the Great Lakes National Program Office and the Great Lakes Regional Collaboration Strategy and implementation plans and projects. The Association is comprised mainly of State of Ohio county health and solid waste management officials, as well as State health and environmental agency officials. Ohio EPA's Julie Letterhos co-presented on the State of Ohio's activities under the Great Lakes Regional Collaboration as well as Lake Erie Lakewide Management Plan monitoring and research activities.

(Contact: Ted Smith, 312-353-6571, smith.edwin@epa.gov)

Great Lakes Legacy Act Rule

USEPA Administrator Steve Johnson signed the Great Lakes Legacy Act rule on April 25th. The rule lays out the process USEPA will use to identify, evaluate, select, and implement projects under its Great Lakes Legacy Act of 2002 authority. The Act authorizes appropriations of \$50 million annually for fiscal years 2004-2008 for contaminated sediment remediation projects throughout the Great Lakes Areas of Concern.

The rule explains the multi-step method GLNPO uses to implement the Act. The initial step is project identification. GLNPO has released one Request for Proposals (RFP) in 2004 and plans on releasing another in the near future, but GLNPO remains open to the receipt of proposals at any time. The next step, once a proposal has been



GLNPO's Ted Smith (left) and Ohio EPA's Julie Letterhos receive certificates of appreciation for their keynote addresses at the Ohio Environmental Health Association's Annual Meeting

received, is the evaluation step. The proposal undergoes a two-stage evaluation process, whereby the proposal is evaluated to see if it meets the requirements of the GLLA and it then receives a thorough technical review. To assist in this review, each proposed project is assigned a category(s) to determine if enforcement or regulatory actions are pending or underway at the proposed site. Finally, at the appropriate time intervals, GLNPO prepares a project ranking based on scores computed from a scoring sheet developed for this purpose. GLNPO then provides this information to the Great Lakes National Program Manager who, in consultation with the USEPA Office of Water, and taking into account available GLLA funding, selects projects for which formal Project Agreement (PA) negotiations will be initiated. The Final Rule can be found on the Internet at: <http://www.epa.gov/glla/GLLAfinalrule.pdf>.

(Contact: Scott Ireland, 312-886-8121, ireland.scott@epa.gov)

Mudpuppy and Crew Tests Its 'Metal'

On April 26th, Mary Beth Ross, Ajit Vaidya, and Dave Wethington – all of the GLNPO Sediment Team – traveled to Milwaukee, Wisconsin to take part in the *R/V Mudpuppy's* annual shakedown cruise. Activities included refresher training on safety procedures, positioning/anchoring, and the use of various sampling equipment. Dave

Wethington remained in Milwaukee on April 27th and 28th to support additional field work conducted by Dr. Tim Grundl of the University of Wisconsin-Milwaukee and Dr. Tim Elam of the University of Washington. The *Mudpuppy* was utilized to field-test an innovative sampling apparatus that employs x-ray spectroscopy to assess and quantify in-situ (in-place) metals concentrations in sediment. The in-situ measurements mean a sediment sample doesn't have to be collected and brought up for later analysis. Rather, the measurements are made directly in the sediments with an X-ray probe that is pushed into the sediments. The measurements were performed at multiple locations within Milwaukee Harbor, at areas that were expected to contain both high and low levels of metals contamination. Sediment core samples were also collected at the same locations as a check on the X-ray probe's detection limits and accuracy.

(Contacts: Mary Beth G. Ross, 312-886-2253, ross.marybeth@epa.gov; or Dave Wethington, 312-886-1437, wethington.david@epa.gov)

Upcoming Events

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| June 27-29 | Toward Wildlife-Friendly Wind Power: A Focus on the Great Lakes Basin Toledo, Ohio |
| October 11- 13 | Second International Symposium on the Lake Huron Ecosystem, Honey Harbor, Ontario Canada |
| November 1-3 | State of the Lakes Ecosystem Conference (SOLEC) 2006 Milwaukee, Wisconsin |

We welcome your questions, comments or suggestions about this month's Significant Activities Report. To be added to or removed from the Email distribution of the Significant Activities Report, please contact Tony Kizlauskas, 312-353-8773, kizlauskas.anthony@epa.gov.